

91676

Access DB#

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Hector Reyes Examiner #: 78264 Date: 4/16/03  
Art Unit: 1625 Phone Number 30-605 1153 Serial Number: 10 608641  
Mail Box and Bldg/Room Location: 3D01-4D-16 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention:

Inventors (please provide full names):

See Bib's Copy

Earliest Priority Filing Date:

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Point of Contact:  
Thomas G. Larson, Ph.D.  
703-308-7309  
CM1, Rm. 6B01

## STAFF USE ONLY

Staff Use Only	Type of Search	Vendors and cost where applicable
Searcher: <u>Point of Contact:</u> <u>Thomas G. Larson, Ph.D.</u>	NA Sequence (#)	STN <u>4834</u>
Searcher Phone #: <u>703-308-7309</u>	AA Sequence (#)	Dialog
Searcher Location: <u>CM1, Rm. 6B01</u>	Structure (#)	Questel/Orbit
Date Searcher Picked Up: <u>4/16</u>	Bibliographic <u>X</u>	Dr. Link
Date Completed: <u>4/23</u>	Litigation	Lexis/Nexis
Searcher Prep & Review Time: <u>30</u>	Fulltext	Sequence Systems
Clerical Prep Time:	Patent Family	WWW/Internet
Online Time: <u>277</u>	Other	Other (specify)

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APR 16 2003  
CHEM  
(STIC)

=> file hcaplus

FILE 'HCAPLUS' ENTERED AT 14:04:01 ON 23 APR 2003

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FILE COVERS 1907 - 23 Apr 2003 VOL 138 ISS 17

FILE LAST UPDATED: 22 Apr 2003 (20030422/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que L9

L1 (	34578)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	PROPYLENE+PFT/CT
L2 (	4978)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	"OXIDATION (L) CATALYTIC"+PFT/CT
L3 (	29800)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	ACRYLIC ACID+PFT/CT
L4 (	75944)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	ACETIC ACID/CT
L5 (	15474)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L1 (L) (RCT OR RACT)/RL
L6 (	4652)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L3 (L) PREP/RL
L7 (	6047)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L4 (L) PREP/RL
L8 (	38)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L5 AND L6 AND L7
L9	2	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L8 AND L2

Search controlled  
Index Term Fields.

Reactant or  
reagent role

preparation role

=> d que L18

L10 (	34578)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	PROPYLENE+PFT/CT
L11 (	29800)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	ACRYLIC ACID+PFT/CT
L12 (	75944)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	ACETIC ACID/CT
L13 (	15477)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L10 (L) (RCT OR RACT)/RL
L14 (	4653)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L11 (L) PREP/RL
L15 (	6051)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L12 (L) PREP/RL
L16 (	38)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L13 AND L14 AND L15
L17 (	106147)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	PURIFICATION+NT,PFT/CT
L18	1	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L16 AND L17

NT = include  
narrower  
controlled terms

PFT = include  
both preferred and  
forbidden terms.

=> d que L27

L19 (	34578)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	PROPYLENE+PFT/CT
L20 (	29800)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	ACRYLIC ACID+PFT/CT
L21 (	75944)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	ACETIC ACID/CT
L22 (	15477)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L19 (L) (RCT OR RACT)/RL
L23 (	4653)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L20 (L) PREP/RL
L24 (	6051)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L21 (L) PREP/RL
L25 (	38)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L22 AND L23 AND L24
L26 (	57733)	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	EXTRACTION+NT,PFT/CT
L27	2	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L25 AND L26

=&gt; d que L36

L28 ( 34578)SEA FILE=HCAPLUS ABB=ON PLU=ON PROPYLENE+PFT/CT  
 L29 ( 29800)SEA FILE=HCAPLUS ABB=ON PLU=ON ACRYLIC ACID+PFT/CT  
 L30 ( 75944)SEA FILE=HCAPLUS ABB=ON PLU=ON ACETIC ACID/CT  
 L31 ( 15477)SEA FILE=HCAPLUS ABB=ON PLU=ON L28 (L) (RCT OR RACT)/RL  
 L32 ( 4653)SEA FILE=HCAPLUS ABB=ON PLU=ON L29 (L) PREP/RL  
 L33 ( 6051)SEA FILE=HCAPLUS ABB=ON PLU=ON L30 (L) PREP/RL  
 L34 ( 38)SEA FILE=HCAPLUS ABB=ON PLU=ON L31 AND L32 AND L33  
 L35 ( 19658)SEA FILE=HCAPLUS ABB=ON PLU=ON DISTILLATION+NT,PFT/CT  
 L36 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L34 AND L35

=&gt; d que L48

L37 ( 34578)SEA FILE=HCAPLUS ABB=ON PLU=ON PROPYLENE+PFT/CT  
 L38 ( 29800)SEA FILE=HCAPLUS ABB=ON PLU=ON ACRYLIC ACID+PFT/CT  
 L39 ( 75944)SEA FILE=HCAPLUS ABB=ON PLU=ON ACETIC ACID/CT  
 L40 ( 15477)SEA FILE=HCAPLUS ABB=ON PLU=ON L37 (L) (RCT OR RACT)/RL  
 L41 ( 4653)SEA FILE=HCAPLUS ABB=ON PLU=ON L38 (L) PREP/RL  
 L42 ( 6051)SEA FILE=HCAPLUS ABB=ON PLU=ON L39 (L) PREP/RL  
 L43 ( 38)SEA FILE=HCAPLUS ABB=ON PLU=ON L40 AND L41 AND L42  
 L44 ( 64945)SEA FILE=HCAPLUS ABB=ON PLU=ON CYCLOALKANES+NT,PFT/CT  
 L45 ( 2480)SEA FILE=HCAPLUS ABB=ON PLU=ON PROPYL ACETATE+PFT/CT  
 L46 ( 1519)SEA FILE=HCAPLUS ABB=ON PLU=ON ISOPROPYL ACETATE+PFT/CT  
 L47 ( 67777)SEA FILE=HCAPLUS ABB=ON PLU=ON L44 OR L45 OR L46  
 L48 0 SEA FILE=HCAPLUS ABB=ON PLU=ON L43 AND L47

=&gt; s L9 or L18 or L27 or L36 or L48

L89 4 L9 OR L18 OR L27 OR L36 OR L48

*combine CAPLUS answer sets*

=&gt; file wpids

FILE 'WPIDS' ENTERED AT 14:05:46 ON 23 APR 2003  
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FILE LAST UPDATED: 16 APR 2003 <20030416/UP>  
 MOST RECENT DERWENT UPDATE: 200325 <200325/DW>  
 DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

&gt;&gt;&gt; NEW WEEKLY SDI FREQUENCY AVAILABLE --&gt; see NEWS &lt;&lt;&lt;

&gt;&gt;&gt; PATENT IMAGES AVAILABLE FOR PRINT AND DISPLAY &lt;&lt;&lt;

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*No controlled term indexing in WPIDS - use free text.*

=&gt; d que L59

L49 ( 77166)SEA FILE=WPIDS ABB=ON PLU=ON PROPYLENE OR PROPENE  
 L50 ( 147986)SEA FILE=WPIDS ABB=ON PLU=ON OXIDAT?  
 L51 ( 913)SEA FILE=WPIDS ABB=ON PLU=ON L49 (5A) L50  
 L52 ( 140463)SEA FILE=WPIDS ABB=ON PLU=ON ACETIC ACID OR ACETATE OR  
 ETHANOIC ACID

L53 ( 97509)SEA FILE=WPIDS ABB=ON PLU=ON ACRYLIC ACID OR ACRYLATE OR  
PROPENOIC ACID OR PROPENOATE OR VINYLFORMIC ACID OR VINYLFORMAT  
E  
L54 ( 15144)SEA FILE=WPIDS ABB=ON PLU=ON L52 (S) L53  
L55 ( 48)SEA FILE=WPIDS ABB=ON PLU=ON L54 AND L51  
L56 ( 76127)SEA FILE=WPIDS ABB=ON PLU=ON DISTILL?  
L57 ( 30)SEA FILE=WPIDS ABB=ON PLU=ON L55 AND L56  
L58 ( 633)SEA FILE=WPIDS ABB=ON PLU=ON (PROPYL OR ISOPROPYL) (W)  
ACETATE  
L59 3 SEA FILE=WPIDS ABB=ON PLU=ON L57 AND L58

=> d que L69

L60 ( 77166)SEA FILE=WPIDS ABB=ON PLU=ON PROPYLENE OR PROPENE  
L61 ( 140463)SEA FILE=WPIDS ABB=ON PLU=ON ACETIC ACID OR ACETATE OR  
ETHANOIC ACID  
L62 ( 97509)SEA FILE=WPIDS ABB=ON PLU=ON ACRYLIC ACID OR ACRYLATE OR  
PROPENOIC ACID OR PROPENOATE OR VINYLFORMIC ACID OR VINYLFORMAT  
E  
L63 ( 2529)SEA FILE=WPIDS ABB=ON PLU=ON L60 AND L61 AND L62  
L64 ( 147986)SEA FILE=WPIDS ABB=ON PLU=ON OXIDAT?  
L65 ( 113)SEA FILE=WPIDS ABB=ON PLU=ON L63 AND L64  
L66 ( 1387103)SEA FILE=WPIDS ABB=ON PLU=ON FRACTION? OR SEPARAT? OR PURIF?  
OR RECOVER? OR DISTIL? OR EXTRACT?  
L67 ( 52)SEA FILE=WPIDS ABB=ON PLU=ON L65 AND L66  
L68 ( 18695)SEA FILE=WPIDS ABB=ON PLU=ON CYCLOHEXANE OR CYCLOALKANE  
L69 5 SEA FILE=WPIDS ABB=ON PLU=ON L67 AND L68

=> d que L79

L70 ( 77166)SEA FILE=WPIDS ABB=ON PLU=ON PROPYLENE OR PROPENE  
L71 ( 140463)SEA FILE=WPIDS ABB=ON PLU=ON ACETIC ACID OR ACETATE OR  
ETHANOIC ACID  
L72 ( 97509)SEA FILE=WPIDS ABB=ON PLU=ON ACRYLIC ACID OR ACRYLATE OR  
PROPENOIC ACID OR PROPENOATE OR VINYLFORMIC ACID OR VINYLFORMAT  
E  
L73 ( 2529)SEA FILE=WPIDS ABB=ON PLU=ON L70 AND L71 AND L72  
L74 ( 147986)SEA FILE=WPIDS ABB=ON PLU=ON OXIDAT?  
L75 ( 113)SEA FILE=WPIDS ABB=ON PLU=ON L73 AND L74  
L76 ( 1387103)SEA FILE=WPIDS ABB=ON PLU=ON FRACTION? OR SEPARAT? OR PURIF?  
OR RECOVER? OR DISTIL? OR EXTRACT?  
L77 ( 52)SEA FILE=WPIDS ABB=ON PLU=ON L75 AND L76  
L78 ( 404)SEA FILE=WPIDS ABB=ON PLU=ON PROPYLACETATE OR PROPYL ACETATE  
OR ACETIC ACID N-PROPYL ESTER  
L79 3 SEA FILE=WPIDS ABB=ON PLU=ON L77 AND L78

=> d que L88

L80 ( 77166)SEA FILE=WPIDS ABB=ON PLU=ON PROPYLENE OR PROPENE  
L81 ( 140463)SEA FILE=WPIDS ABB=ON PLU=ON ACETIC ACID OR ACETATE OR  
ETHANOIC ACID  
L82 ( 97509)SEA FILE=WPIDS ABB=ON PLU=ON ACRYLIC ACID OR ACRYLATE OR  
PROPENOIC ACID OR PROPENOATE OR VINYLFORMIC ACID OR VINYLFORMAT  
E  
L83 ( 2529)SEA FILE=WPIDS ABB=ON PLU=ON L80 AND L81 AND L82  
L84 ( 147986)SEA FILE=WPIDS ABB=ON PLU=ON OXIDAT?  
L85 ( 113)SEA FILE=WPIDS ABB=ON PLU=ON L83 AND L84  
L86 ( 329)SEA FILE=WPIDS ABB=ON PLU=ON ISOPROPYLACETATE OR ISOPROPYL  
ACETATE OR ACETIC ACID I-PROPYL ESTER  
L87 ( 8)SEA FILE=WPIDS ABB=ON PLU=ON I-PROPYLACETATE OR I-PROPYL

## ACETATE OR ACETIC ACID ISOPROPYL ESTER

L88 1 SEA FILE=WPIDS ABB=ON PLU=ON L85 AND (L86 OR L87)

=> s L59 or L69 or L79 or L88

L90 7 L59 OR L69 OR L79 OR L88

=> dup rem L89 L90

FILE 'HCAPLUS' ENTERED AT 14:08:34 ON 23 APR 2003

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PROCESSING COMPLETED FOR L89

PROCESSING COMPLETED FOR L90

L91 11 DUP REM L89 L90 (0 DUPLICATES REMOVED)

=> D IBIB ABS 1-11

L91 ANSWER 1 OF 11 WPIDS (C) 2003 THOMSON DERWENT

ACCESSION NUMBER: 2003-103324 [09] WPIDS

DOC. NO. CPI: C2003-026031

TITLE: Latex-modified alkyd composition for use in coating composition, comprises polyol-containing latex compositions and diol-containing latex compositions.

DERWENT CLASS: A14 A25 A82 G02

INVENTOR(S): JONES, A S; KUO, T; MONCIER, J D; MURRAY, D L; SHARMA, M K

PATENT ASSIGNEE(S): (JONE-I) JONES A S; (KUOT-I) KUO T; (MONC-I) MONCIER J D; (MURR-I) MURRAY D L; (SHAR-I) SHARMA M K; (EACH) EASTMAN CHEM CO

COUNTRY COUNT: 30

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
-----					
WO 2002081545	A1	20021017	(200309)*	EN	59
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR					
W: AU BR CA CN CZ JP KR MX SG ZA					
US 2003018110	A1	20030123	(200310)		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
-----			
WO 2002081545	A1	WO 2002-US10782	20020404
US 2003018110	A1 Provisional	US 2001-282612P	20010409
		US 2002-94355	20020308

PRIORITY APPLN. INFO: US 2002-94355 20020308; US 2001-282612P 20010409

AN 2003-103324 [09] WPIDS

AB WO 200281545 A UPAB: 20030206

NOVELTY - A latex-modified alkyd composition comprises a polyol-containing latex composition and a diol-containing latex composition.

DETAILED DESCRIPTION - A latex-modified alkyd composition comprises:

(1) 5-80 wt.% latex polymer composition comprising

- (a) latex polymer particles comprising a residue of an ethylenically unsaturated monomer;
- (b) a stabilizer comprising a surfactant and sulfopolyester; and
- (c) a liquid continuous phase comprising a diol component present at 10-100 wt.% continuous phase, and optionally polyol component;
- (2) 20-90 wt.% monobasic fatty acid, fatty ester, or a naturally occurring, partially saponified oil; and
- (3) optionally, a polycarboxylic acid or a polycarboxylic acid anhydride, a monocarboxylic acid or a sulfomonomer.

INDEPENDENT CLAIMS are included for the following:

- (a) A process of preparing a latex-modified alkyd composition comprising combining 5-80 wt.% latex polymer composition and 20-90 wt.% monobasic fatty acid, fatty ester, and naturally occurring, partially saponified oil, as alkyd polymer precursors;
- (b) An enamel composition comprising 10-90 wt.% latex-modified alkyd composition, 10-90 wt.% organic solvent, and a catalytic amount of a metal drier;
- (c) A coating composition comprising 35-90 wt.% latex-modified alkyd composition, 5-50 wt.% crosslinker, and optionally, an organic solvent present at greater than 0-60 wt.%;
- (d) An article coated with the coating composition;
- (e) A waterborne enamel composition comprising 10-90 wt.% latex modified alkyd composition, a catalytic amount of a metal drier, and optionally, a water miscible organic solvent present at greater than 0-40 wt.%.

USE - In coating composition useful for coating metal, paper, or plastic articles (claimed).

ADVANTAGE - The resulting alkyd polymers have excellent coating properties, because of a greater number of groups available for oxidative cure. The inventive process provides a method for blending alkyd and latex with improved stability.  
Dwg.0/0

L91 ANSWER 2 OF 11 WPIDS (C) 2003 THOMSON DERWENT  
 ACCESSION NUMBER: 2003-069497 [07] WPIDS  
 DOC. NO. CPI: C2003-018221  
 TITLE: Microcapsules, useful in oxidation dye compositions, comprise an aqueous core containing an oxidizing enzyme in a shell of selected polymer.  
 DERWENT CLASS: A96 D21 E19 E24  
 INVENTOR(S): BERNARD, A L; BIATRY, B; NICOLAS, M L; SIMONNET, J T; BERNARD, A; NICOLAS MORGANTINI, L; SIMONNET, J  
 PATENT ASSIGNEE(S): (OREA) L'OREAL SA  
 COUNTRY COUNT: 100  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
FR 2821548	A1	20020906	(200307)*		43
WO 2002069922	A1	20020912	(200307)	FR	
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW					

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
FR 2821548	A1	FR 2001-2972	20010305
WO 2002069922	A1	WO 2002-FR704	20020227

PRIORITY APPLN. INFO: FR 2001-2972 20010305

AN 2003-069497 [07] WPIDS

AB FR 2821548 A UPAB: 20030129

NOVELTY - Microcapsules comprise:

(a) an aqueous core containing a 2- or 4-electron oxidoreductase or peroxidase enzyme; and

(b) a shell of a selected polymer including polycaprolactone, poly(3-hydroxybutyrate), poly(alkylene adipate), cellulose carboxylate ester, styrene-ethylene/butylene-styrene, styrene-ethylene/**propylene**-styrene block copolymer or ethylene/vinyl **acetate**/maleic anhydride terpolymer.

DETAILED DESCRIPTION - Microcapsules comprise:

(a) an aqueous core containing a 2- or 4-electron oxidoreductase or peroxidase enzyme; and

(b) a shell of polycaprolactone, poly(3-hydroxybutyrate), poly(ethylene adipate), poly(butylene adipate), a cellulose 1-4C carboxylate ester, a styrene/maleic anhydride or styrene/**acrylic acid** copolymer, a styrene-ethylene/butylene-styrene or styrene-ethylene/**propylene**-styrene block copolymer or an ethylene/vinyl **acetate**/maleic anhydride terpolymer.

INDEPENDENT CLAIMS are also included for:

(1) a process for producing the microcapsules, comprising solubilizing or dispersing the enzyme in an aqueous phase; emulsifying the solution or dispersion in a solution of the shell polymer in a water-immiscible organic solvent; emulsifying the resulting primary water-in-oil emulsion in an aqueous solution; removing the organic solvent; and optionally removing water;

(2) a composition for **oxidation** dyeing of keratinic fibers, comprising the microcapsules and one or more developers and/or couplers in a physiologically acceptable medium;

(3) an **oxidation** dyeing kit comprising **separate** components, one comprising the microcapsules and another comprising one or more developers and/or couplers.

USE - The microcapsules are useful as the oxidizing component in compositions and kits for **oxidation** dyeing of keratinic fibers, e.g. hair.

ADVANTAGE - The polymer shell retains the enzyme irreversibly while allowing small molecules, e.g. oxygen and hydrogen peroxide, to escape; inhibits adsorption of the enzyme on the hair and scalp; prevents inhibition of the enzyme by certain dyes; and reduces heat inactivation of the enzyme.

Dwg.0/0

L91 ANSWER 3 OF 11 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:106135 HCAPLUS

DOCUMENT NUMBER: 136:281122

TITLE: Catalytic Wall Reactor as a Tool for Isothermal Investigations in the Heterogeneously Catalyzed Oxidation of Propene to Acrolein

AUTHOR(S): Redlingshoefer, Hubert; Kroecker, Oliver; Boeck, Wolfgang; Huthmacher, Klaus; Emig, Gerhard

CORPORATE SOURCE: Lehrstuhl fuer Technische Chemie I, University of Erlangen-Nuremberg, Erlangen, 91058, Germany

SOURCE: Industrial & Engineering Chemistry Research (2002),

41(6), 1445-1453  
 CODEN: IECRED; ISSN: 0888-5885  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The vapor phase oxidn. of propene to acrolein is a highly exothermic reaction. To ensure isothermal reaction conditions, a catalytic wall reactor was used for detailed investigations on the reaction behavior on a multicomponent bismuth-molybdate oxide catalyst. The reaction temp. showed only small influence on the selectivity to acrolein, but a significant optimum at about 360.degree. is obsd. The results further indicate a change in the rate-detg. step: while at low temps. (<360.degree.) catalyst reoxidn. is rate detg., with increasing oxygen content accelerating the formation of acrolein considerably, its influence disappears at higher temps. Not only does water increase the selectivity to acrolein, but also, at low temps., it improves catalyst reoxidn. remarkably. Addnl., the formation of the most important side products (acrylic acid, carbon oxides, acetaldehyde, formaldehyde, and acetic acid) was obsd., depending on the reaction parameters.

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L91 ANSWER 4 OF 11 WPIDS (C) 2003 THOMSON DERWENT

ACCESSION NUMBER: 2001-589350 [66] WPIDS

DOC. NO. CPI: C2001-174688

TITLE: Production of (meth)acrylic acid, involves reacting specific hydrocarbons, absorbing formed product using solvent, separating solvent, impurities, adding aldehyde treating agent to crude acid, recycling waste liquid.

DERWENT CLASS: A41 E17

INVENTOR(S): MATSUMOTO, Y; MITSUMOTO, T; NAKAHARA, S; YOSHIMURA, T

PATENT ASSIGNEE(S): (JAPC) NIPPON SHOKUBAI CO LTD; (MATS-I) MATSUMOTO Y; (MITS-I) MITSUMOTO T; (NAKA-I) NAKAHARA S; (YOSH-I) YOSHIMURA T

COUNTRY COUNT: 2

PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 2001016668	A1	20010823	(200166)*		8
JP 2001213839	A	20010807	(200166)		7

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 2001016668	A1	US 2001-772458	20010130
JP 2001213839	A	JP 2000-26149	20000203

PRIORITY APPLN. INFO: JP 2000-26149 20000203

AN 2001-589350 [66] WPIDS

AB US2001016668 A UPAB: 20011113

NOVELTY - A gaseous reaction product formed by catalytic gas phase oxidation of propylene, propane and/or acrolein, and isobutylene, t-butyl alcohol, methyl-t-butyl ether and/or methacrolein, is absorbed using solvent, followed by separating solvent and impurities. Crude (meth)acrylic acid (MA) formed is separated and treated with aldehyde treating agent to obtain



purified MA. Waste liquid generated is recycled.

DETAILED DESCRIPTION - Propylene, propane and/or acrolein, or isobutylene, t-butyl alcohol, methyl-t-butyl ether and/or methacrolein are subjected to catalytic gas phase oxidation to obtain a gaseous reaction product. The above product is absorbed using a solvent. ~~The solvent, low and high boiling point impurities are separated from the (meth)acrylic acid solution by extraction or distillation. Crude (meth)acrylic acid-containing aldehydes having boiling point closer to that of (meth)acrylic acid is obtained as impurities. An aldehyde treating agent is added to the crude (meth)acrylic acid and subjected to vacuum distillation to obtain (meth)acrylic acid of high purity. The waste liquid generated during distillation is returned to solvent absorption and/or separation process.~~

USE - For manufacturing (meth)acrylic acid with high purity.

ADVANTAGE - The method enables to manufacture (meth)acrylic acid with high purity and effectively suppresses the generation of a polymer. The re-circulation of the waste liquid prevents the clogging of the pipe for discharging the residue.  
Dwg.0/0

L91 ANSWER 5 OF 11 WPIDS (C) 2003 THOMSON DERWENT  
ACCESSION NUMBER: 2000-319260 [28] WPIDS  
DOC. NO. CPI: C2000-096960  
TITLE: Oxidation of olefinic compound, e.g. of propylene to propylene oxide, over heterogeneous catalyst uses medium containing carbon monoxide besides oxygen.  
DERWENT CLASS: E13  
INVENTOR(S): GROSCH, G H; MUELLER, U; RIEBER, N; STEIN, B  
PATENT ASSIGNEE(S): (BADI) BASF AG  
COUNTRY COUNT: 52  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
DE 19847629	A1	20000420	(200028)*		6
WO 2000021945	A1	20000420	(200028)	GE	
RW: AT BE CH CY DE DK EA ES FI FR GB GR IE IT LU MC NL PT SE					
W: AL AU BG BR BY CA CN CZ GE HU ID IL IN JP KR KZ LT LV MK MX NO NZ					
PL RO RU SG SI SK TR UA US ZA					
AU 9962027	A	20000501	(200036)		
BR 9914569	A	20010703	(200141)		
EP 1121350	A1	20010808	(200146)	GE	
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT					
RO SE SI					
KR 2001080171	A	20010822	(200213)		
US 6348607	B1	20020219	(200221)		
CN 1330645	A	20020109	(200229)		
JP 2002527428	W	20020827	(200271)		24
MX 2001003669	A1	20011101	(200279)		

#### APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 19847629	A1	DE 1998-19847629	19981015
WO 2000021945	A1	WO 1999-EP7738	19991014

AU 9962027	A	AU 1999-62027	19991014
BR 9914569	A	BR 1999-14569	19991014
		WO 1999-EP7738	19991014
EP 1121350	A1	EP 1999-970389	19991014
		WO 1999-EP7738	19991014
KR 2001080171	A	KR 2001-704742	20010414
US 6348607	B1	WO 1999-EP7738	19991014
		US 2001-806514	20010416
CN 1330645	A	CN 1999-814541	19991014
JP 2002527428	W	WO 1999-EP7738	19991014
		JP 2000-575851	19991014
MX 2001003669	A1	MX 2001-3669	20010410

## FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 9962027	A	Based on	WO 200021945
BR 9914569	A	Based on	WO 200021945
EP 1121350	A1	Based on	WO 200021945
US 6348607	B1	Based on	WO 200021945
JP 2002527428	W	Based on	WO 200021945

PRIORITY APPLN. INFO: DE 1998-19847629 19981015

AN 2000-319260 [28] WPIDS

AB DE 19847629 A UPAB: 20000613

NOVELTY - In the **oxidation** of organic compound(s) (I) containing carbon-carbon (C-C) double bonds by reaction with a medium containing oxygen (O<sub>2</sub>) in the presence of a heterogeneous catalyst, the medium also contains carbon monoxide (CO).

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an integrated process for the **oxidation** of (I) in 4 stages.

USE - The process is useful in the production of epoxides from olefins, preferably low-molecular olefins, such as ethylene, butenes and especially **propylene**. It is suitable for the epoxidation of a wide range of olefinic compounds, including 2-20 C olefins; **propylene** di-, tri- and tetramers; styrene and other vinyl-aromatic compounds; diphenylethylene; polybutadiene; polyisoprene; 6-8 and 12 C cycloolefins; cyclooctadiene; cyclododecatriene; dicyclopentadiene; methylene-cyclopropane, -cyclopentane and -**cyclohexane**; vinyl-**cyclohexane** and -cyclohexene; methallyl ketone; allyl chloride and bromide; (meth)acrylic, crotonic and vinylacetic acid; crotyl and methallyl chloride; dichlorobutenes; allyl alcohol, carbonate and **acetate**; alkyl (meth)**acrylates**; diallyl maleate and phthalate; unsaturated triglycerides, e.g. soya oil; unsaturated fatty acids, e.g. oleic, linolic, linolenic and ricinoleic acid and their esters, including mono-, di- and triglycerides; and mixtures of these.

ADVANTAGE - The process gives over 60% selectivity to epoxides without using explosive gas mixtures of oxygen and hydrogen.  
Dwg.0/0

L91 ANSWER 6 OF 11 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1998:455727 HCAPLUS

DOCUMENT NUMBER: 129:54696

TITLE: Purification of acrylic acid obtained by catalytic oxidation of propylene by absorption with hydrophobic aromatic hydrocarbon solvents

INVENTOR(S): Fauconet, Michel; Esch, Marc; Laurent, Denis

PATENT ASSIGNEE(S): Elf Atochem S. A., Fr.

SOURCE: Fr. Demande, 31 pp.  
 CODEN: FRXXBL  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2756280	A1	19980529	FR 1996-14397	19961125
FR 2756280	B1	19981224		
WO 9823573	A1	19980604	WO 1997-FR2092	19971120
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9852273	A1	19980622	AU 1998-52273	19971120
EP 946486	A1	19991006	EP 1997-947102	19971120
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI				
CN 1238754	A	19991215	CN 1997-199991	19971120
BR 9713102	A	20000328	BR 1997-13102	19971120
JP 2000507616	T2	20000620	JP 1998-524349	19971120
US 6281386	B1	20010828	US 1999-308756	19990525
PRIORITY APPLN. INFO.:			FR 1996-14397	A 19961125
			WO 1997-FR2092	W 19971120

OTHER SOURCE(S): MARPAT 129:54696

AB Acrylic acid, obtained by the catalytic oxidn. of propylene, is purified by a counter-current washing of the reaction-mixt. gas with a heavy, hydrophobic, arom. hydrocarbon solvents (e.g., ditolyl ether), and then obtained in purified form by an extn. step. Suitable arom. solvents have: (1) a b.p., at atm. pressure, in the range of 260-380.degree.; (2) a crystn. temp. <35.degree.; and a viscosity <10 mPa-s at 30-80.degree.. A process flow diagram is presented.

L91 ANSWER 7 OF 11 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 1997:178840 HCAPLUS

DOCUMENT NUMBER: 126:172034

TITLE: Purification of acrylic acid obtained by the catalytic oxidation of propylene

INVENTOR(S): Fauconet, Michel; Esch, Marc; Samuel, Yves; Laurent, Denis

PATENT ASSIGNEE(S): Elf Atochem S.A., Fr.

SOURCE: Eur. Pat. Appl., 12 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 754671	A1	19970122	EP 1996-401590	19960717
EP 754671	B1	19990331		
R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE				
FR 2736912	A1	19970124	FR 1995-8672	19950718
FR 2736912	B1	19970822		

US 5705688	A	19980106	US 1996-682188	19960717
AT 178308	E	19990415	AT 1996-401590	19960717
ES 2132854	T3	19990816	ES 1996-401590	19960717
CA 2181508	AA	19970119	CA 1996-2181508	19960718
CN 1143069	A	19970219	CN 1996-106194	19960718
CN 1063426	B	20010321		
JP 09118645	A2	19970506	JP 1996-207967	19960718
JP 3053575	B2	20000619		
CZ 288198	B6	20010516	CZ 1996-2141	19960718

## PRIORITY APPLN. INFO.:

FR 1995-8672 A 19950718

AB The gaseous oxidn. product is subjected to countercurrent extn. with a heavy hydrophobic solvent and to 2 stages of distn. The ext. from the initial stage is fed to near the bottom of the first distn. stage, from which acrylic acid is withdrawn as overhead and the bottoms are fed to a side point in the lower half of the second distn. stage. The bottoms from the second distn. (mostly solvent) are recycled to the extn. stage, a side stream contg. maleic anhydride and other byproducts with b.p. between that of acrylic acid and that of the solvent is withdrawn from a point above the feed, and the overhead is recycled to the first distn. stage. Optionally, another distn. stage may be inserted between the extn. and the first distn. stage, in which light impurities (e.g., HOAc) are stripped.

L91 ANSWER 8 OF 11 WPIDS (C) 2003 THOMSON DERWENT

ACCESSION NUMBER: 1997-549028 [50] WPIDS

CROSS REFERENCE: 1995-081052 [11]; 1995-226153 [30]; 1998-041229 [04]; 2002-050509 [07]

DOC. NO. CPI: C1997-175058

TITLE: Epoxidation of aliphatic mono olefin(s) - by contacting with hydrogen peroxide in the presence of a crystalline molecular sieve containing titanium.

DERWENT CLASS: A41 E13 H04 J04

INVENTOR(S): CROCCO, G L; SAXTON, R J; ZAJACEK, J G

PATENT ASSIGNEE(S): (ATLF) ARCO CHEM TECHNOLOGY LP

COUNTRY COUNT: 1

## PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 5684170	A	19971104	(199750)*		8

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5684170	A Div ex	US 1993-172405	19931223
	Cont of	US 1996-622799	19960327
		US 1996-650230	19960520

## FILING DETAILS:

PATENT NO	KIND	PATENT NO
US 5684170	A Div ex	US 5374747

PRIORITY APPLN. INFO: US 1993-172405 19931223; US 1996-622799 19960327; US 1996-650230 19960520

AN 1997-549028 [50] WPIDS

CR 1995-081052 [11]; 1995-226153 [30]; 1998-041229 [04]; 2002-050509 [07]

AB US 5684170 A UPAB: 20020130


Epoxidation of 2-10C aliphatic monoolefins comprises contacting the

monoolefin with hydrogen peroxide in a liquid phase in the presence of a crystalline titanium-containing molecular sieve at 25-120 deg. C. The crystalline titanium-containing molecular sieve has a framework structure isomorphous to zeolite beta comprising Si and Ti but less than 1000 ppm framework aluminium, in a ratio of  $\text{SiO}_2:\text{yTiO}_2$  ( $y = 0.01-0.25$ ). The sieve is prepared by: (a) contacting a zeolite beta with a mineral acid at 20-200 deg. C until all of the aluminium from the framework is **extracted**, to form a de-aluminised zeolite beta having a Si:Al molar ratio omega 750; and (b) contacting the de-aluminised zeolite beta with a volatile titanium compound at ~~100-850~~ deg. C.

USE - The process is useful for **epoxidation** of especially **propylene** (claimed) and, e.g. ethylene, ~~butenes~~, butadiene, pentenes, isoprene, 1-hexene, 3-hexene, 1-heptene, 1-octene, diisobutylene, 1-nonene, 1-tetradecene, pentamycene, camphene, 1-undecene, 1-dodecene, 1-tridecene, 1-tetradecene, 1-pentadecene, 1-hexadecene, 1-heptadecene, 1-octadecene, 1-nonadecene, 1-eicosene, trimers and tetramers of **propylene**, styrene, polybutadiene, polyisoprene, cyclopentene, cyclohexene, cycloheptene, cyclooctene, cyclooctadiene, cyclododecene, cyclododecatriene, dicyclopentadiene, methylenecyclopropane, methylene cyclopentane, methylenecyclohexane, vinyl **cyclohexane**, vinyl cyclohexene, methallyl ketone, allyl chloride and bromide, **acrylic acid**, methacrylic acid, crotonic acid, vinyl **acetic acid**, crotyl chloride, methallyl chloride, dichlorobutenes, allyl alcohol, allyl carbonate, allyl **acetate**, alkyl **acrylates** and methacrylates, diallyl maleate, diallyl phthalate, unsaturated triglycerides (e.g. soybean oil) and unsaturated fatty acids, e.g. oleic acid, linolenic acid, linoleic acid, erucic acid palmitoleic acid and ricinoleic acid and glyceride esters. In addition, the titanium-containing molecular sieves are also useful as ion exchangers, shape-selective **separation** media or catalysts for other hydrocarbon conversion processes, e.g. cracking, selectoforming, hydrogenation, dehydrogenation, oligomerisation, alkylation, isomerisation, dehydration, hydroxylation of olefins or aromatics, alkane **oxidation**, reforming, disproportionation, methanation. The molecular sieves are also particularly useful for catalysing reactions previously catalysed by titanium silicalites (titanium silicates).

ADVANTAGE - Epoxide selectivities of, e.g. 75% and hydrogen peroxide conversions of 98% are obtained (in examples).  
Dwg.0/1

L91 ANSWER 9 OF 11 HCAPLUS COPYRIGHT 2003 ACS  
ACCESSION NUMBER: 1995:608383 HCAPLUS  
DOCUMENT NUMBER: 123:111416  
TITLE: Investigations of catalytic mechanisms for selective propene oxidation in the presence of steam  
AUTHOR(S): Saleh-Alhamed, Yahia A.; Hudgins, Robert R.; Silveston, Peter L.  
CORPORATE SOURCE: Chemical Engineering Department, King Abdulaziz University, P.O. Box 9027, Jeddah, 214413, Saudi Arabia  
SOURCE: Applied Catalysis, A: General (1995), 127(1-2), 177-99  
CODEN: ACAGE4; ISSN: 0926-860X  
PUBLISHER: Elsevier  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB A study was carried out on propene partial oxidn. in the presence and absence of steam over a mixed transition metal oxide. Its objective was to explore mechanisms and key rate controlling steps for this partial oxidn. in the presence of added water. The reaction was studied in the


 concn. ranges (by vol. %) C:3 .ltoreq.20%; 5% < O2 < 20%; 0.5% < H2O < 15% with N2 as a diluent. An Sb/Sn/V oxide catalyst was used. Three techniques were used: (1) transient response of reaction products to a step-change in feed compn., (2) temp.-programmed desorption (TPD) for reactant and product adsorbates, and (3) isotopic transient expts. using 18O2. TPD and isotopic expts. suggest that water addn. disturbs the adsorbate concns. on the surface through competitive adsorption and creates new sites, leading to a slow increase in the rate of partial oxidn. These expts. also establish that oxygen is not strongly chemisorbed but oxygen exchange with the surface is possible. The existence of at least three groups of adsorption and/or reaction sites was postulated, corresponding to weakly bonded propene at 140.degree.C, strongly bonded propene at 210.degree.C and sites on which propene is converted to oxygenates up to 400.degree.C. Only the strongly bonding sites contribute to acid formation, C-C bond scission and total oxidn. With water present, further oxidn. of oxygenates is suppressed and carbon dioxide forms only from C-C bond scission. Water may participate in acid formation.

L91 ANSWER 10 OF 11 WPIDS (C) 2003 THOMSON DERWENT  
 ACCESSION NUMBER: 1993-220872 [28] WPIDS  
 DOC. NO. CPI: C1993-098310  
 TITLE: **Acrylic acid** prodn. on an industrial scale - by **oxidn.** of **propylene** and/or acrolein and **distn.** in azeotropic **sepn.** tower using mixed azeotrope solvent.  
 DERWENT CLASS: A41 E17  
 INVENTOR(S): AKAZAWA, Y; BABA, M; SAKAMOTO, K; TANAKA, H; UEOKA, M  
 PATENT ASSIGNEE(S): (JAPC) NIPPON SHOKUBAI CO LTD; (JAPC) NIPPON CATALYST CO LTD  
 COUNTRY COUNT: 14  
 PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 551111	A1	19930714	(199328)*	EN	10
R: DE ES FR GB IT					
AU 9331057	A	19930715	(199335)		
CA 2086779	A	19930710	(199339)		
JP 05246941	A	19930924	(199343)		7
US 5315037	A	19940524	(199420)		8
AU 654070	B	19941020	(199443)		
JP 08009567	B2	19960131	(199609)		7
CN 1078458	A	19931117	(199710)		
TW 295580	A	19970111	(199717)		
EP 551111	B1	19970618	(199729)	EN	9
R: DE ES FR GB IT					
DE 69311585	E	19970724	(199735)		
MX 184140	B	19970310	(199820)		
SG 47659	A1	19980417	(199826)#		
CA 2086779	C	19980623	(199836)		
KR 9604624	B1	19960409	(199914)		

## APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 551111	A1	EP 1993-100158	19930107
AU 9331057	A	AU 1993-31057	19930106
CA 2086779	A	CA 1993-2086779	19930106

JP 05246941	A	JP 1993-1866	19930108
US 5315037	A	US 1993-222	19930104
AU 654070	B	AU 1993-31057	19930106
JP 08009567	B2	JP 1993-1866	19930108
CN 1078458	A	CN 1993-101177	19930109
TW 295580	A	TW 1992-110509	19921230
EP 551111	B1	EP 1993-100158	19930107
DE 69311585	E	DE 1993-611585	19930107
		EP 1993-100158	19930107
MX 184140	B	MX 1993-65	19930108
SG 47659	A1	SG 1996-3558	19930107
CA 2086779	C	CA 1993-2086779	19930106
KR 9604624	B1	KR 1993-63	19930106

## FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 654070	B	Previous Publ.	AU 9331057
JP 08009567	B2	Based on	JP 05246941
DE 69311585	E	Based on	EP 551111

PRIORITY APPLN. INFO: JP 1992-2331 19920109; SG 1996-3558  
19930107

AN 1993-220872 [28] WPIDS

AB EP 551111 A UPAB: 19931118

Prodn. of **acrylic acid** (I) comprises (a) subjecting **propylene** and/or acrolein to catalytic gas phase **oxidn.** with a molecular oxygen-contg. gas to obtain a mixed. gas; (b) contacting the mixed gas with water in an **acrylic acid** absorption tower to obtain an **acrylic acid** aq. soln.; and (c) introducing the **acrylic acid** aq. soln. into an azeotropic **separation** tower for **distn.** of the **acrylic acid** aq. soln. along with an azeotrope solvent to **separate** (I) from the **acrylic acid** aq. soln.

The azeotrope solvent is a mixed solvent consisting of at least one solvent A of diethyl ketone, methyl propyl ketone, methyl isobutyl ketone, methyl tert-butyl ketone and ~~n-propyl acetate and at least one solvent B of toluene, heptane and methylcyclohexane.~~ A mixt. (M) consisting substantially of **acetic acid**, water and the azeotrope solvent is thus **distilled** off from the top of the azeotropic separation tower and (I) which is substantially free of **acetic acid**, water and the azeotrope solvent is obtd. from the bottom of the tower.

USE/ADVANTAGE - The liq. withdrawn from the bottom can be used, as it is, as a starting material for preparing acrylic esters and when the liq. is subjected to further **distn.** to remove high boiling impurities, there is obtained an **acrylic acid** prod. of high quality. The process provides a way of producing highly pure **acrylic acid** in an industrially beneficial manner.

Dwg. 0/0

ABEQ JP 05246941 A UPAB: 19931207

Prepn. or **acrylic acid** (I) comprises (1) **oxidn** . of **propylene** and/or acrolein with O<sub>2</sub>, (2) absorbing the **oxidn.** prod. into water, and (3) **distilling** the aq. soln. (II) in the presence of a solvent mixt. (III) to remove (I) as bottom (IV). The solvent mixt. (III) comprises component A (IIIa) selected from diethylketone, methyl propyl ketone, methyl isobutyl ketone (MIBK) methyl tert-butyl ketone, **n-propyl acetate** and

component B (IIIb) selected from toluene, heptane and methylcyclohexane.


Pref. the oxidn. prod. is contacted with water in an absorption tower (IIIa)/(IIIb) = 50/50-75-25) is fed to the column from a tank. A mixt. of water, byproduct **acetic acid** and (III) is removed as overhead and the organic layer is **sepd.** from the gaseous layer, and fed to the column as (III). The bottom of the column, **purified (I)**, is fed to a **distilling** column to **recover (I)** as overhead, and heavy impurities are removed. Alternatively, the bottom can be used as material for prpen. of a deriv. e.g. methyl **acrylate** etc. without further **purifcn.**

ADVANTAGE - (I) is **sepd.** from (II) efficiently by azeotropic **distn.** using (III).

Dwg.0/1

ABEQ US 5315037 A UPAB: 19940705

**Acrylic acid** is produced by catalytic gas phase oxidn. of **propylene** and/or acrolein with O<sub>2</sub>-contg gas; contacting resulting mixed gas with water in acrylic acid absorption tower; and introducing resulting **acrylic acid aq. soln.** into an azeotrope solvent to **separate acrylic acid from soln.**

The azeotrope solvent is a mixed solvent consisting of at least one solvent (A) selected from diethyl ketone, methyl propyl ketone, MIBK, methyl tert. butyl ketone, and n-propyl acetate; and at least one solvent (B) selected from toluene, heptane and methyl-cyclohexane. 


~~A mixt.~~ Consisting of **acetic acid**, water and the azeotrope solvent is **distilled** off from the top of the tower. **Acrylic acid** free from **acetic acid**, water and the solvent is obtd. from the bottom of the tower.

ADVANTAGE - High purity **acrylic acid** is produced in industrially beneficial process.

Dwg.0/1

ABEQ EP 551111 B UPAB: 19970716

A process for producing **acrylic acid** which comprises subjecting **propylene** and/or acrolein to catalytic gas phase **oxidation** with a molecular oxygen-containing gas to obtain a mixed gas, contacting the mixed gas with water in an acrylic acid absorption tower to obtain an acrylic acid aqueous solution comprising 50 to 80 wt.% of **acrylic acid**, 2 to 5 wt.% of **acetic acid** and the balance being of water, and introducing the **acrylic acid** aqueous solution into an azeotropic **separation** tower for **distillation** of the **acrylic acid** aqueous solution along with an azeotrope solvent to **separate acrylic acid from the acrylic acid**

aqueous solution, wherein said azeotrope solvent is a mixed solvent consisting of at least one solvent A of diethyl ketone, methyl propyl ketone, methyl isobutyl ketone, methyl-tert.-butyl ketone and n-propyl acetate and at least one solvent B of toluene, heptane and methylcyclohexane in a mixing ratio-by-weight between the solvent A and the solvent B in the azeotrope solvent in the range of 50:50 to 75:25 whereby a mixture consisting substantially of **acetic acid**, water and the azeotrope solvent is **distilled** off from the top of the azeotropic **separation** tower and **acrylic acid** which is substantially free of **acetic acid**, water and the azeotrope solvent is obtained from the bottom of the tower. 

Dwg.0/1

L91 ANSWER 11 OF 11 WPIDS (C) 2003 THOMSON DERWENT



ACCESSION NUMBER: 1968-08890Q [00] WPIDS  
TITLE: **Acrylic acid is purified by azeotropic distillation of acetic acid from mixts. of acrylic and acetic acids at pressures below 350 mm Hg. abs. in presence of a p.**  
DERWENT CLASS: A00  
PATENT ASSIGNEE(S): (ASAH) ASAH KASEI KOGYO KK  
COUNTRY COUNT: 4  
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
GB 1120284	A		(196800) *		
US 3433831	A		(196801)		
JP 46022456	B		(197125)		
DE 1568022	B		(197323)		

PRIORITY APPLN. INFO: JP 1965-38905 19650630; JP 1965-38906  
19650630

AN 1968-08890Q [00] WPIDS

AB GB 1120284 A UPAB: 19930831

**Acrylic acid is purified by azeotropic distillation of acetic**

**acid from mixts. of acrylic and acetic acids at pressures below**

350 mm Hg. abs. in presence of a polymerization inhibitor, the entrainer being a C7 aliphatic or alicyclic hydrocarbon, toluene, or a mixt. of these, with water and/or an ester R1COOR2 (where R1 is C1-3 hydrocarbyl radical and R2 is a C1-4 hydrocarbyl radical) having a b.p. not above 130 deg.C. and/or a C3-4 nitrile, the mol ratio of water, ester or nitrile to hydrocarbon being from 0.05:1 to 1.5:1. Ethyl acetate, methyl acrylate, propyl acetate, ethyl

acrylate, acetonitrile and acrylonitrile are suitable entrainer components. The acrylic acid may be obtd. by vapour phase

oxidation of propylene or acrolein giving a 10-30% aqs. acrylic

acid soln. contng. a mol ratio of 1/4 to 1/500 of acetic acid.

The crude soln. may be extracted with the water-insoluble entrainer components and the extract distilled.